Tanta University

Faculty of Engineering

Electrical Power and Machines
Engineering Department

Electric Circuit (1) Lab Experiments

1st Year of Electrical Engineering
1st Term

Experiment (2)

Kirchhoff's Voltage Law

Kirchhoff's Voltage Law

- K.V.L. states that the summation of voltage rises is equal to the voltage drops in a closed loop in any electrical circuit.

$$\sum \mathbf{V_{rises}} = \sum \mathbf{V_{drops}}$$

OR:

- The summation of all voltages in any closed loop is equal to zero.

$$\sum \mathbf{V=0}$$

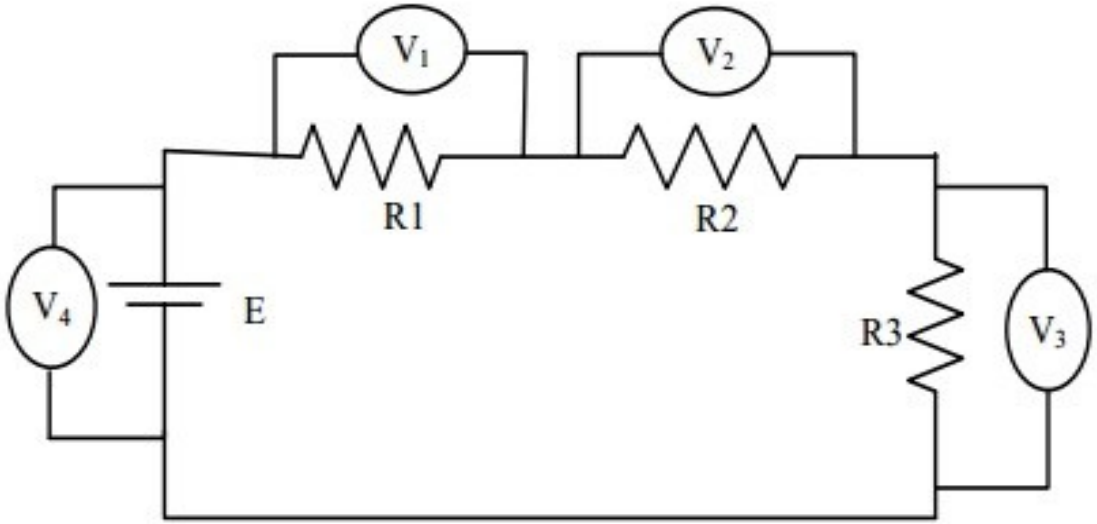
Objective of experiment

- To verify experimentally K.V.L. for a simplified electrical circuit.

Experiment Requirements

- **3** Resistors.
- D.C. Supply.
- **4** D.C. Voltmeters.

Experiment connection



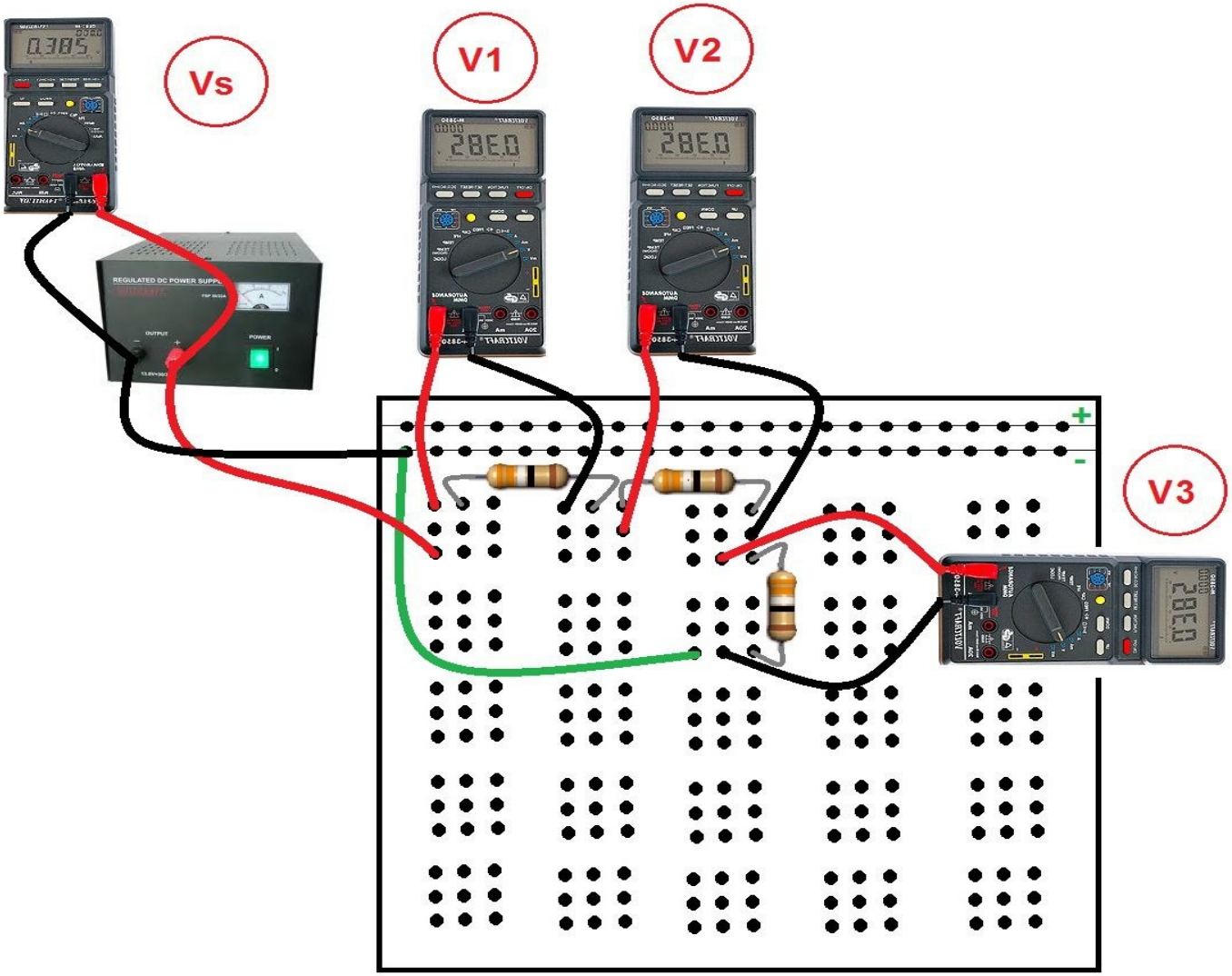
It is supposed to note that:

E=V1+V2+V3

OR

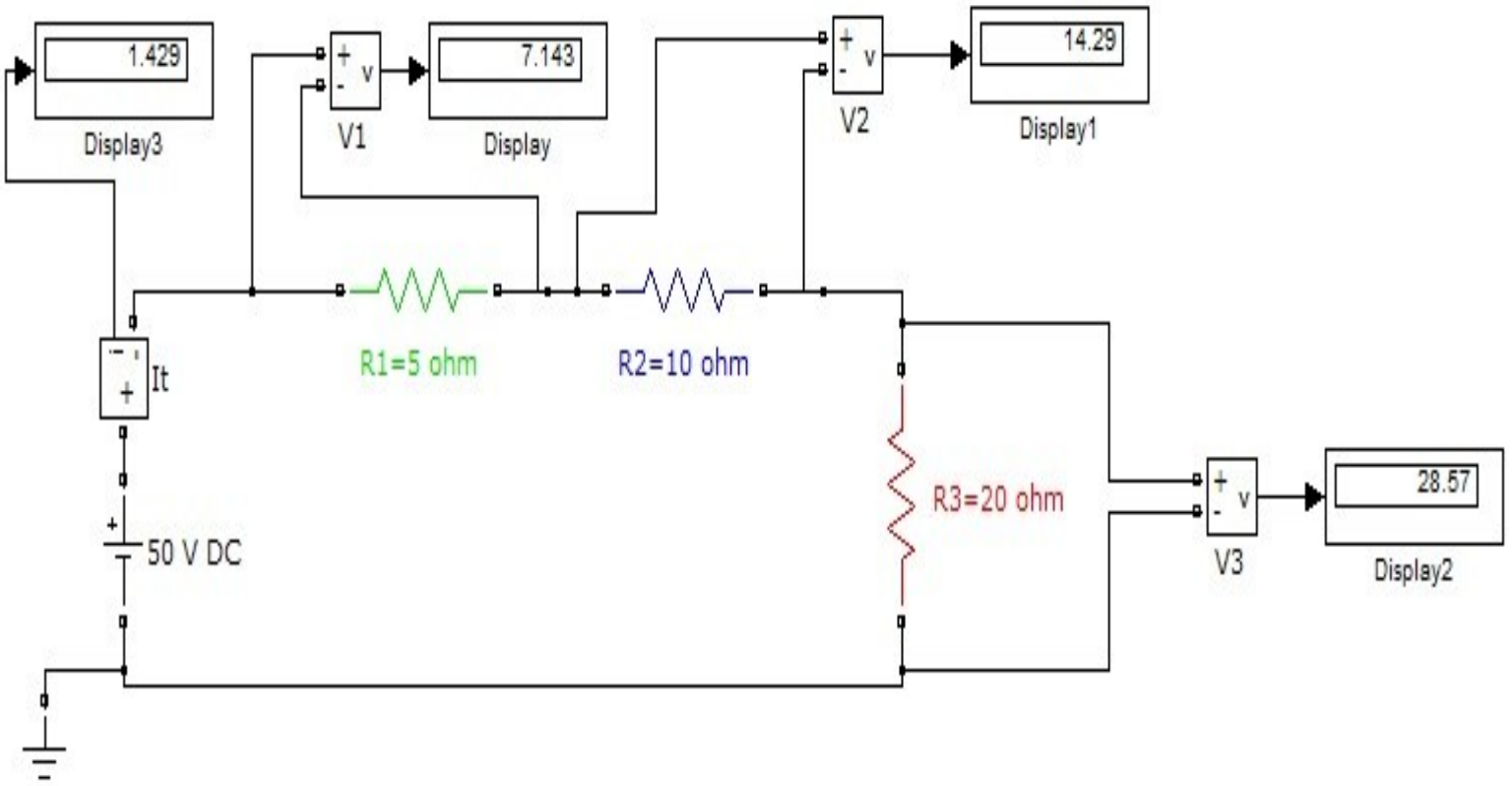
E-V1-V2-V3=0

Experiment connection



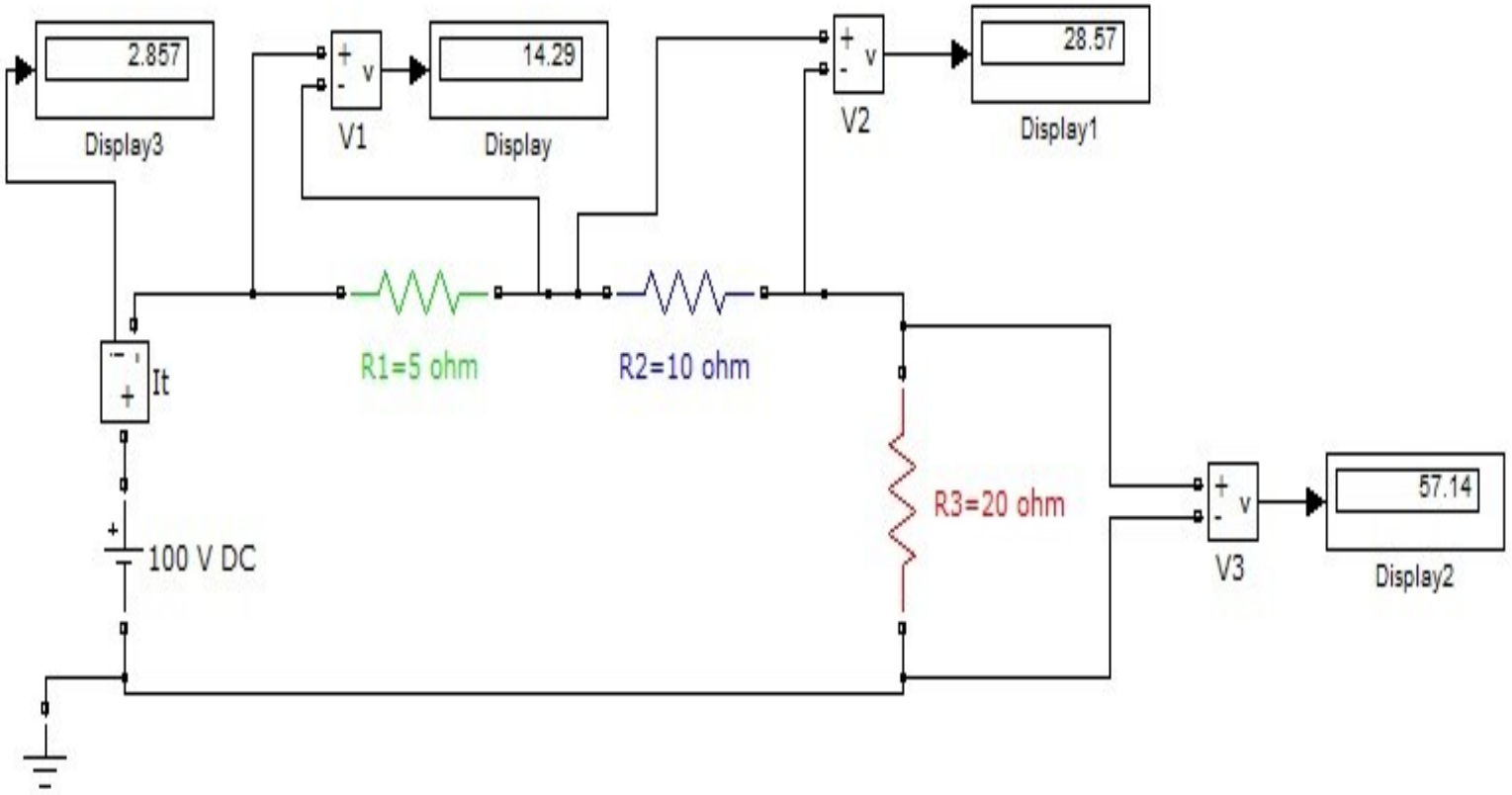
Simulation results

At Supply voltage = 50 V



Simulation results

At Supply voltage = 100 V



Experiment results

By changing the D.C. Source value, then read the rest of voltages and record it.

VS	V1	V2	V3